

CLAIMS

What is claimed is:

- 5 1. A method of fabricating a device including at least one active area comprising:
- exposing said active area to a first environment containing moisture in the form of water vapor prior to encapsulation of said active area.
- 10 2. A method according to claim 1 further comprising:
- after said exposing, encapsulating under a cap said at least one active area, wherein said encapsulating is performed in a second environment trapping a mixture of gases between said at least one OLED and said cap.
- 15 3. A method according to claim 2 wherein said first environment and said second environment are different in composition.
4. A method according to claim 2 wherein said first environment and said second environment are identical in composition.
- 20 5. A method according to claim 1 wherein said mixture of gases contains nitrogen.
6. A method according to claim 1 wherein the percentage of moisture is
- 25 from about 1% to about 80% by volume.

7. A method according to claim 1 wherein said first environment includes at least one of oxygen, nitrogen, atmospheric air, hydrogen and argon.

5 8. A method according to claim 2 wherein said mixture of gases includes at least one of oxygen, nitrogen, atmospheric air, hydrogen and argon.

9. A method according to claim 1 wherein said exposing is performed for only a specified period of time.

10 10. A method according to claim 1 wherein said active area includes at least one of an organic light emitting diode, a solar cell, and an organic transistor.

11. A method according to claim 1 wherein said exposing is performed for
15 a time ranging from about a few seconds to a few hours.

12. A method according to claim 1 wherein said exposing is performed for a time ranging from approximately a few seconds to thirty minutes.

20 13. An apparatus comprising:
a substrate;
at least one active element, said active element fabricated on said substrate;
and
an encapsulation cap attached to said substrate protecting and covering said
25 element from environmental exposure, wherein said element has been exposed to

an exposure environment containing moisture in the form of water vapor for a specified period of time prior to said encapsulation cap being bonded, and wherein said encapsulation cap traps a gas mixture between said element and said encapsulation cap.

5

14. An apparatus according to claim 13 wherein said gas mixture contains nitrogen.

15. An apparatus according to claim 13 wherein the percentage of
10 moisture is between 1% and 80% by volume.

16. An apparatus according to claim 13 wherein said exposure environment includes at least one of oxygen, nitrogen, atmospheric air, hydrogen and argon.

15

17. An apparatus according to claim 13 wherein said gas mixture includes at least one of oxygen, nitrogen, atmospheric air, hydrogen and argon.

18. An apparatus according to claim 13 wherein said active element
20 comprises at least one emissive layer, said element causing said emissive layer to emit light using an applied electric potential.

19. An apparatus according to claim 18 wherein said active element further comprises:

an anode layer, said anode layer transporting holes to said emissive layer;
and

a cathode layer, said cathode layer transporting electrons to said emissive
layer, said transported holes and electrons recombining in said emissive layer to
5 cause said emissive layer to emit light.

20. An apparatus according to claim 18 wherein said emissive layer is
composed of an at least partially organic material.

10 21. An apparatus according to claim 13 wherein said specified period of
time ranges from about a few seconds to a few hours.

22. An apparatus according to claim 13 wherein said specified period of
time ranges from approximately a few seconds to thirty minutes.

15

23. A method for fabricating an active electronic device, comprising:
fabricating a first electrode layer;
depositing at least active layer;
fabricating a second electrode layer;
20 exposing said fabricated and deposited layers to a first environment
containing moisture in the form of water vapor for a specified period of time; and
after said exposing, encapsulating said layers about a substrate upon which
said layers were fabricated and deposited, said encapsulating performed under a
second environment.

25

24. A method for fabricating an active electronic device, comprising:

fabricating a first electrode layer;

depositing at least active layer;

fabricating a second electrode layer;

5 exposing said fabricated and deposited layers to a first environment
containing oxygen for a specified period of time; and

after said exposing, encapsulating said layers about a substrate upon which
said layers were fabricated and deposited, said encapsulating performed under a
second environment, said second environment containing at least one inert gas.

10

25. A method of fabricating a device including at least one active area
comprising:

exposing said active area to a first environment containing oxygen to
encapsulation of said active area; and

15

after said exposing, encapsulating under a cap said at least one active area
said encapsulating performed in a second environment trapping at least one inert
gas between said at least one OLED and said cap.